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ABSTRACT

The predictive value of the high-school-level battery of the tests of General Educational Development (GED) for two-year college academic performance was investigated. GED tests scores were examined to determine if they could substitute for a complete high school record as a source of predictor data. Student record data from a registrar's office of a community college was evaluated. The results support the premise that the GED is a valid and positive predictor of first semester, two-year college GPA. There were no significant differences between academic performance of high achool graduates and non-high school graduate GED recipients in the study. (Author/BCR)

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THE TESTS OF GENERAL EDUCATIONAL DEVELOPMENT IN DIFFERENTIAL PREDICTION OF TWO-YEAR COLLEGE ACADEMIC PERFORMANCE[1]

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THE TESTS OF GENERAL EDUCATIONAL DEVELOPMENT IN DIFFERENTIAL PREDICTION OF TWO-YEAR COLLEGE ACADEMIC PERFORMANCE

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Research, published and unpublished, related to the prediction of college grade-point average (GPA) is extensive. A wide variety of predictor variable categories have been investigated, including such factors as interest patterns, personality characteristics, sex of student, biographical and demographical items, high school rank, high school subject fields, and aptitude and achievement test results.

One of the more promising classes of predictors has been standardized test scores. The American College Test (ACT) and the Scholastic Aptitude Test (SAT) are both now widely used as aids in establishing expectancy tables and predicted first semester GPA for prospective college students. Another factor consistently shown to be a significant predictor of college academic performance has been high school academic performance. This variable seems quite satisfactorily utilized when complete high school records through the senior year are available. Measures such as high school class rank upon graduation (HSR) and overall three- or four-year high school grade-point average (HSGPA) have demonstrated their value in the prediction of college academic performance.

However, for the student who desires to obtain further training following secondary studies, but who has not completed formal high school studies, predictors such as cumulative HSGPA and HSR are not available. The manual for the high school battery of the Tests of General Educational Development (GED) indicates that these tests are designed to provide an

estimate of the level of functioning in the area of high school academic skills for persons not having completed formal high school training. Those persons meeting a certain criterion for performance on these tests are considered to have the equivalent of a high school education and are issued a certificate of high school equivalency by a state educational agency. It might therefore be hypothesized that for the high school non-graduate who does not have a complete high school record from which to obtain class rank and cumulative GPA information, the GED tests scores provide the best estimate of high school performance, and in this sense, provide a logical substitute for the complete high school academic record as a source of predictor data.

A monograph by Sharon (1972) of the Educational Testing Service strongly suggests that the high school level GED has promise as a predictive device for college academic performance. One of the implications of that study was that the GED may predict better for the two-year college than for the four-year college. A 1969 nationwide survey by the Commission on Accreditation of Service Experiences of the American Council on Education has demonstrated the widespread use of GED scores as a basis of admission to higher education institutions, especially those at the two-year college level.

Since a major source of academic and occupational-technical training for the high school non-graduate client is the wide variety of programs available at the two-year college level, a detailed investigation to clarify and extend the basic findings of the ETS monograph seemed well-justified. This was particularly true in view of the documented accessibility of the two-year college to the high school non-graduate GED recipient. To date, the criterion aspect of the GED has received considerable attention while the predictive aspect has not. This study investigated the predictive value of the high-school-level battery of the GED for two-year college academic performance.

OBJECTIVES OF THE STUDY

The overall objective of the study was, of course, to investigate the validity of the high-school-level battery of the GED as a predictor of two-year college GPA. In order to systematically accomplish this, the study was designed to:

1. Extend the previous rudimentary findings regarding the effectiveness of the high school level GED test battery as a predictor of overall two-year college GPA.

2. Investigate the relationship between two-year college GPA of the subjects and such subject factors as sex, age, number of high school grades completed, GED completion status for high school non-graduate subjects, and high school graduation status.

3. Determine the nature of the relationship between scores on the GED and academic performance in three different types of two-year college programs, including transfer degree, terminal degree, and technical certificate.

4. Determine the nature of the relationship between scores on the GED and academic performance in both transfer and terminal degree subject categories, as measured by GPA in major field and required general and elective courses.

One of the most fundamental premises in the entire study is that the GED tests may well prove to be representative of much of the same information encoded in HSR and HSGPA. This study represents an attempt to demonstrate that despite the lack of HSR and HSGPA information for the high school non-graduate, college academic performance in the form of two-year college GPA can be satisfactorily predicted through the use of GED scores and other related, easily-obtained student data.

BACKGROUND AND SIGNIFICANCE

The search for effective predictors of college academic performance is not a recent development. Predictors of all types have been studied, but two general classes of information have been established as providing the

best prediction of college academic performance. These may both be considered ability measures, and they include (a) measures of high school academic achievement usually expressed in the form of high school rank at graduation (HSR) or cumulative high school grade-point average (HSGPA), and (b) measures of scholastic aptitude which are obtained from scores on standardized tests such as the ACT, SAT, and the SCAT. Other test information such as mental ability measures have also been used with moderate success.

Burnham and Hewitt (1972), Scannell (1960) and many others have demonstrated the predictive value of high school achievement for subsequent college academic performance. Other investigators have demonstrated that aptitude test scores are also substantial predictors of college performance, including DeSena and Weber (1965), Lenning and Maxey (1973), Conry and Plant (1965), Siegelman (1971) and others. Although the trend in prediction studies has been to use data from four-year colleges and universities, the prediction of academic performance in the two-year college has also received increasing attention. Prediction of academic performance in the two-year college setting has been explored by Baird (1969), Munday (1968), Hoyt (1966), and Sharon (1972) among others. In fact, Sharon (1972) has demonstrated that in some cases two-year college GPA may be more predictable than four-year college GPA.

However, studies using the high school GED battery in the predictive process have been largely absent, although the study of Sharon (1972) is a notable exception. A study by Byrd, et al. (1973) comparing freshman academic performance of high school non-graduates with the GED and high school graduates at a community college and a study by Ayers (1979) predicting GPA at a Canadian university program for incarcerated students using GED scores remain the only research done since Sharon, and these are unpublished, as is a doctoral dissertation by Hanna (1972) on junior college academic achievement of GED students.

PROCEDURE

The subjects in the study were first-year students at South Plains College in Levelland, Texas, a community college of approximately 3,000 students serving both rural and urban populations through provision of academic and technical instruction. High school non-graduates who had completed the GED and had enrolled in either a two-year transfer degree program or a two-year terminal degree program received primary emphasis in the study. The GPA predicted was the first semester, first year GPA at South Plains College. All information used was contained in the permanent record file in the Registrar's Office, and all subjects were first semester freshman. A data card was prepared for each S, and the data then were recorded on this card by an independent, but trained recorder.

The sample drawn included three major groups. The first group was the primary focus of the study, and involved selection of a representative sample of high school non-graduates who had completed the GED. This group was composed of two subgroups of equal N, one containing GED subjects enrolled in a transfer degree curriculum, and the other containing GED subjects enrolled in a terminal degree curriculum. The second and third groups were used for comparison purposes rather than the primary thrust of the study. The second group was composed of a representative sample of high school non-graduates who had not completed the GED. The third group was composed of a representative sample of high school graduates. The N for each of the three major groups was 100, and the total N was 300. Appropriate sampling constraints and systematic selection procedures were imposed to ensure the representativeness of the sample, which included students enrolled in long semesters over a three year period. Several supplemental groups were also designated and selected in like fashion, including a technical certificate GED group with an N of 30.

SUMMARY OF THE RESULTS

A Pearson product-moment correlation coefficient of .35 with an N of 100 was obtained between mean GED SS and first semester, two-year college GPA for the test group, high school non-graduates who had completed the GED. This value was significant at the .05 level. A significant positive relationship between mean GED SS and first semester, two-year college GPA was thus demonstrated. Using stepwise multiple regression correlation analysis, a significant positive relationship was found to exist between the SS of the five component subtests of the GED and first semester, two-year college GPA. The multiple R-value obtained was .38 with an N of 100, and the analysis of variance (ANOVA) for the regression confirmed significane at the .05 level. GED Test 4 was the first variable entering as a predictor, followed by GED Test 5. Zero-order correlations between the five GED subtests and GPA ranged from .36 for GED Test 4 to .18 for GED Test 1. Prediction was significantly improved when the variables of student age and number of high school grades were added as predictors. The stepwise regression analysis yielded an R-value of .47 with an N of 100, and the ANOVA for the regression found the obtained coefficient significant at the .05 level. Complete iteration was performed, and GED Test 4 was the first predictor entering, followed by age of student, number of high school grades completed, GED Test 5, and GED Test 1.

Because of inherent philosophical and structural differences between two-year college transfer and terminal degree programs, differential prediction by the GED for these program types was examined. A significant positive relationship was found to exist between the SS of the GED subtests and first semester, two-year college GPA for both transfer and terminal degree programs. Stepwise regression analyses for both transfer and terminal degree

GED students yielded R-values of .52 and .51 for transfer and terminal degree groups, respectively. With the composite GED group N of 100 reduced to an N of 50 for each GED subgroup, correcting the sample multiple correlation coefficients for shrinkage when predicting for larger groups yielded R-values of .45 and .44, respectively. The ANOVA for the regression for both regression analyses was again significant at the .05 level. Complete interation was also again performed, and for transfer degree GED sutdents, GED Test 4 was the first predictor entering, followed by GED Test 3, GED Test 1, and GED Test 5. For terminal degree GED students, GED Test 4 also entered as the first predictor, followed by GED Test 3 and GED Test 2.

A significant positive relationship was found to exist between the SS of the component sections of the GED and both major field and non-major field first semester, two-year college transfer degree program GPA. The canonical correlation coefficient yielded by the first set of canonical weights was .53, significant at the .01 level using the chi-square method of Bartlett. The GED subtest variate was best defined first by GED Test 3 and then GED Test 4, while the GPA area variate was best defined by non-major field GPA. The second set of weights yielded an R_c of .42, a value which did not reach the required .05 significance level. No significant positive relationship was found to exist between the SS of the component sections of the GED and both major field and non-major field first semester, two-year college terminal degree program GPA, as the canonical correlation coefficient failed to reach significance.

The mean first semester, two-year college GPA's for representative groups of high school graduates, high school non-graduates having completed the GED, and high school non-graduates without the GED were compared using a one-way ANOVA for unequal N. No significant differences were noted between the obtained

respective mean GPA's of 2.64, 2.61, and 2.60 for the three primary groups. The first semester academic performance of the high school non-graduate at the two-year college degree level was therefore not substantially different from that of the high school graduate in this study.

CONCLUSIONS AND RECOMMENDATIONS

With the support from the extensive analysis of the data, it was concluded that the GED is a valid predictor of first semester, two-year college GPA at the college studied. It was also concluded that the use of the SS of individual subtests of the GED as predictors provided valid and somewhat more efficient prediction of first semester, two-year college GPA than with the use of only mean GED SS, and that GED Test 4, Interpretation of Literary Materials, was the single most effective GED subtest in predicting this criterion. The data also strongly suggest that the GED subtest SS may provide more efficient prediction of first semester, two-year college GPA when used to differentially predict by type of degree than when used as a global predictor of that criterion. It would appear that the factor of verbal comprehension plays a major role in the determination of success of high school non-graduate GED students in two-year college study. The data also demonstrate that prediction of major and non-major academic performance at the two-year college level by GED component SS usage is a valid procedure when utilized with high school non-graduate GED students pursuing two-year college transfer degree programs. The nature of this relationship has not been adequately explored in this study and is certainly an area to explore further in other research investigations of this issue.

Nonetheless, there is strong evidence offered by this preliminary study that out-of-class educational experiences are sufficient to compensate

in the main for lack of formal educational background in those high school non-graduates who elect to return to formal academic training at the two-year college level. The support for such a conclusion comes from both the positive relationship between GED scores and two-year college academic performance and the lack of observed differences in academic performance between high school graduates and high school non-graduates.

In addition, the results suggest that readily obtained information such as student age and number of high school grades completed may also be important in predicting two-year college academic performance for non-high school graduates when used in conjunction with GED scores. The data certainly offer persuasive evidence that further study with larger N at other institutions is warranted. Certainly, the potential for use of GED scores as a counseling aid for the high school non-graduate wishing to return to formal education at the two-year college level seems promising. In addition to use of the GED mean SS and individual subtest SS in the counseling and academic advising process, combining these measures with non-intellective ones such as age and number of high school grades completed and others not identified in this study could maximize the usefulness of the GED in this regard. Above all, suggestions for further study must mention the desirability of investigating the predictive power of the GED and the related data for specific groups in specific settings and in specific curricula at both the two-year and four-year degree level. I would guess that this is the direction my study of this topic will take me in the future, especially for prediction of specific groups and curricula at the two-year degree level.

REFERENCES

Ayers, J. D. Relationship of first-year university grades of non-high school graduates with the Tests of General Educational Development. Unpublished Manuscript, University of Victoria, 1979.

Baird, L. L. The prediction of grades in occupational and academic curricula in two year colleges. Journal of Educational Measurement, 1969, 6, 247-254.

Burnham, S. and Hewitt, B. A. Secondary school grades and other data as predictors of academic achievement in college. College and University, 1972, 48, 21-25.

Byrd, F., Hayes, E., Hendrix, J., Simpson, D. and Cluster, B. A comparison of the educational success of GED recipients and traditional high school graduates in selected areas at Wilkes Community College. Unpublished manuscript, Nova University, 1973. (ERIC)

Conry, R. and Plant, W. T. WAIS and group tests predictions of an academic success criterion: high school and college. Educational and Psychological Measurement, 1965, 25, 493-500.

DeSena, P. A. and Weber, L. A. The predictive validity of the School College Ability Test (SCAT) and the American College Test (ACT) at a liberal arts college for women. Educational and Psychological Measurement, 1965, 25, 1149-1151.

Hannah, W. C. Achievement and dropout rates of GED students and high school graduates from Alabama junior colleges. Dissertation Abstracts International, 1973, 33, 6639A-6640A.

Hoyt, D. P. Predicting grades in two-year terminal programs. Junior College Journal, 1966, 36, 20-23.

Lenning, O. T. and Maxey, E. J. ACT vs. SAT prediction for present-day colleges and students. Educational and Psychological Measurement, 1973, 33, 397-406.

Munday, L. A. A comparison of junior college students in transfer and terminal curricula. Journal of College Student Personnel, 1968, 9, 325-329.

Scannell, D. P. Prediction of college success from elementary and secondary school performance. Journal of Educational Psychology, 1960, 51, 130-134.

Sharon, A. T. The Non-high-school-graduate-Adult in college and his success as predicted by the Tests of General Educational Development. Princeton, N. J.: Educational Testing Service, 1972.

Sharon, A. T. Predicting the college success of non-high school graduates with the Tests of General Educational Development. Educational and Psychological Measurement, 1972, 32, 1055-1059.

Siegelman, M. SAT and high school average as predictors of four year college achievement. Educational and Psychological Measurement. 1971, 31. 947-950.